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## Test 1675: Agco Allis 9650 Diesel 18-Speed

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# NEBRASKA OECD TRACTOR TEST 1675—SUMMARY 147

## AGCO ALLIS 9650 DIESEL

### 18 SPEED

**Location of Test:** Tractor Testing Laboratory,  
University of Nebraska, Lincoln, Nebraska 68583-0832

**Dates of Test:** April 6-26, 1994

**Manufacturer:** AGCO Corporation, Norcross,  
Georgia 30092

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1090 rpm)</b>					
155.93 (116.28)	2398	9.69 (36.67)	0.434 (0.264)	16.10 (3.17)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
159.04 (118.60)	2198	9.41 (35.61)	0.414 (0.252)	16.91 (3.33)	
<b>Maximum Power (2 hours)</b>					
159.30 (118.79)	2099	9.28 (35.14)	0.408 (0.248)	17.16 (3.38)	

#### VARYING POWER AND FUEL CONSUMPTION

155.93 (116.28)	2398	9.69 (36.67)	0.434 (0.264)	16.10 (3.17)	Air temperature
136.42 (101.73)	2470	8.79 (33.29)	0.451 (0.274)	15.51 (3.06)	76°F (24°C)
103.03 (76.83)	2490	7.25 (27.44)	0.492 (0.299)	14.21 (2.80)	Relative humidity
69.09 (51.52)	2509	5.83 (22.08)	0.591 (0.360)	11.84 (2.33)	43%
34.54 (25.76)	2526	4.38 (16.56)	0.886 (0.539)	7.90 (1.56)	Barometer
—	2559	2.96 (11.20)	—	—	29.01"Hg (98.23 kPa)

Maximum Torque 453 lb.-ft. (614 Nm) at 1701 rpm  
Maximum Torque Rise 32.6%  
Torque rise at 1896 rpm 29%

#### DRAWBAR PERFORMANCE

##### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—7th Gear</b>									
138.03 (102.93)	12182 (54.19)	4.25 (6.84)	2398	4.74	0.488 (0.297)	14.34 (2.83)	air cld	63 (17)	29.10 (98.54)
<b>75% of Pull at Maximum Power—7th Gear</b>									
108.85 (81.17)	9140 (40.65)	4.47 (7.19)	2479	3.21	0.522 (0.318)	13.40 (2.64)	air cld	65 (18)	29.08 (98.48)
<b>50% of Pull at Maximum Power—7th Gear</b>									
74.00 (55.18)	6092 (27.10)	4.55 (7.33)	2501	2.07	0.605 (0.368)	11.57 (2.28)	air cld	65 (18)	29.08 (98.48)
<b>75% of Pull at Reduced Engine Speed—9th Gear</b>									
109.14 (81.38)	9140 (40.65)	4.48 (7.21)	1798	3.21	0.455 (0.277)	15.37 (3.03)	air cld	65 (18)	29.08 (98.48)
<b>50% of Pull at Reduced Engine Speed—9th Gear</b>									
73.91 (55.12)	6098 (27.12)	4.55 (7.32)	1804	2.07	0.490 (0.298)	14.26 (2.81)	air cld	65 (18)	29.08 (98.48)

**FUEL OIL and TIME:** Fuel No. 2 Diesel Cetane No. 53.9 Specific gravity converted to 60°/60° F (15°/15°C) 0.8400 Fuel weight 6.994 lbs/gal (0.838 kg/l) Oil SAE 15W-40 API service classification SG/CET motor 3.731 gal/(4.123 l) Drained from motor 3.311 gal (12.533 l) Transmission and hydraulic lubricant AGCO Power Fluid 821XL Front axle lubricant AGCO Gear Lube 715 SAE 80W-90 Total time engine was operated 31.0 hours.

**ENGINE:** Make Klockner-Humboldt-Deutz Ag Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. \*8341392\* Crankshaft lengthwise Rated engine speed 2400 Bore and stroke (as specified) 4.016" × 4.921" (102.0 mm × 125.0 mm) Compression ratio 15.5 to 1 Displacement 374 cu in (6129 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and aspirator Oil filter one full flow cartridge Oil cooler radiator for crankcase oil, radiator for hydraulic and final drive oil, radiator for transmission oil Fuel filter two paper elements Muffler underhood Exhaust vertical Cooling medium temperature control air cooled with variable speed fan.

**ENGINE OPERATING PARAMETERS:** Fuel rate: 64.8-69.4 lb/h (29.4-31.5 kg/h) High idle: 2550-2600 rpm Turbo boost nominal 13.1-14.5 psi (90-100 kPa) as measured 14.0 psi (97 kPa)

**CHASSIS:** Type front wheel assist Serial No. 940145 Tread width rear 65.0" (1651 mm) to 124.0" (3150 mm) front 62.6" (1590 mm) to 88.6" (2250 mm) Wheel base 117.0" (2972 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled powershift Nominal travel speeds mph (km/h) first 1.71 (2.76) second 2.03 (3.26) third 2.37 (3.81) fourth 2.71 (4.37) fifth 3.21 (5.16) sixth 3.75 (6.04) seventh 4.42 (7.11) eighth 5.22 (8.41) ninth 6.11 (9.83) tenth 7.10 (11.42) eleventh 8.39 (13.50) twelfth 9.82 (15.80) thirteenth 11.24 (18.09) fourteenth 13.29 (21.39) fifteenth 15.54 (25.02) sixteenth 18.30 (29.45) seventeenth 21.62 (34.80) eighteenth 25.31 (40.73) reverse 2.08 (3.34), 2.46 (3.95), 2.87 (4.62), 3.29 (5.30), 3.89 (6.26), 4.55 (7.33), 5.36 (8.63), 6.33 (10.19), 7.41 (11.93) Clutch multiple wet disc hydraulically actuated by foot pedal Brakes wet multiple disc hydraulically actuated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 2227 engine rpm and 1000 rpm at 2200 engine rpm Unladen tractor mass 17060 lb (7758 kg)

**DRAWBAR PERFORMANCE  
MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th Gear									
108.66 (81.03)	16944 (75.37)	2.40 (3.87)	2467	14.66	0.574 (0.349)	12.19 (2.40)	air cld	56 (13)	29.12 (98.61)
5th Gear									
126.78 (94.54)	15972 (71.05)	2.98 (4.79)	2455	10.19	0.532 (0.323)	13.15 (2.59)	air cld	60 (16)	29.11 (98.58)
6th Gear									
134.40 (100.22)	14849 (66.05)	3.39 (5.46)	2327	7.67	0.499 (0.303)	14.02 (2.76)	air cld	61 (16)	29.11 (98.58)
7th Gear									
138.20 (103.05)	14060 (62.54)	3.69 (5.93)	2116	6.31	0.470 (0.286)	14.87 (2.93)	air cld	64 (18)	29.10 (98.54)
8th Gear									
139.74 (104.21)	11904 (52.95)	4.40 (7.09)	2098	4.83	0.466 (0.283)	15.02 (2.96)	air cld	65 (18)	29.10 (98.54)
9th Gear									
139.47 (104.01)	10021 (44.58)	5.22 (8.40)	2105	3.55	0.464 (0.282)	15.06 (2.97)	air cld	66 (19)	29.09 (98.51)
10th Gear									
140.16 (104.51)	8635 (38.41)	6.09 (9.80)	2100	3.03	0.461 (0.280)	15.18 (2.99)	air cld	66 (19)	29.09 (98.51)
11th Gear									
140.83 (105.02)	7305 (32.49)	7.23 (11.64)	2100	2.42	0.455 (0.277)	15.36 (3.03)	air cld	66 (19)	29.08 (98.48)
12th Gear									
138.39 (103.20)	6129 (27.26)	8.47 (13.63)	2092	2.25	0.465 (0.283)	15.03 (2.96)	air cld	65 (18)	29.08 (98.48)

**DRAWBAR PERFORMANCE (BALLASTED—FRONT DRIVE ENGAGED)  
MAXIMUM POWER IN SELECTED GEARS**

4th Gear									
128.39 (95.74)	20068 (89.26)	2.40 (3.86)	2371	11.62	0.529 (0.322)	13.23 (2.61)	air cld	49 (9)	28.88 (97.80)
5th Gear									
136.25 (101.60)	18317 (81.48)	2.79 (4.49)	2241	7.86	0.485 (0.295)	14.41 (2.84)	air cld	53 (12)	28.89 (97.83)
6th Gear									
140.09 (104.47)	16799 (74.72)	3.13 (5.03)	2110	6.42	0.468 (0.285)	14.95 (2.94)	air cld	55 (13)	28.89 (97.83)
7th Gear									
143.17 (106.76)	14429 (64.18)	3.72 (5.99)	2100	5.02	0.456 (0.277)	15.35 (3.02)	air cld	56 (13)	28.90 (97.87)
8th Gear									
141.66 (105.64)	11911 (52.98)	4.46 (7.18)	2103	3.84	0.462 (0.281)	15.13 (2.98)	air cld	58 (14)	29.14 (98.68)
9th Gear									
139.28 (103.86)	9940 (44.21)	5.25 (8.46)	2103	3.24	0.462 (0.281)	15.13 (2.98)	air cld	59 (15)	29.15 (98.71)
10th Gear									
140.60 (104.85)	8609 (38.29)	6.12 (9.86)	2101	2.80	0.460 (0.280)	15.20 (3.00)	air cld	59 (15)	29.15 (98.71)
11th Gear									
142.13 (105.99)	7328 (32.59)	7.27 (11.71)	2102	2.27	0.457 (0.278)	15.32 (3.02)	air cld	60 (16)	29.16 (98.75)
12th Gear									
138.90 (103.57)	6104 (27.15)	8.53 (13.73)	2100	2.22	0.467 (0.284)	14.97 (2.95)	air cld	63 (17)	29.16 (98.75)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 134° F (57°C). This tractor did not meet manufacturers claim of 24 GPM (90 l/m) hydraulic flow or 3 point lift capacity of 7212 lbs (3271 kg) (optionally—8544 lbs (3875 kg)). The pull in 4th gear (ballasted, front drive engaged) was limited to avoid excessive tractor bouncing. The performance results on this summary were taken from OECD tests conducted under the Code II Restricted Standard Test Code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1675**, Summary 147, June 17, 1994.

LOUIS I. LEVITICUS  
Engineer-in-Charge

R.D. GRISSO  
M.F. KOCHER  
K. VON BARGEN  
Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE**  
**(BALLASTED—FRONT DRIVE DISENGAGED)**  
**FUEL CONSUMPTION CHARACTERISTICS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—7th Gear</b>									
136.70 (101.94)	12051 (53.61)	4.25 (6.85)	2401	5.11	0.495 (0.301)	14.14 (2.79)	air cld	76 (24)	28.43 (96.28)
<b>75% of Pull at Maximum Power—7th Gear</b>									
107.36 (80.06)	9018 (40.11)	4.46 (7.19)	2480	3.58	0.529 (0.322)	13.22 (2.60)	air cld	79 (26)	28.40 (96.17)
<b>50% of Pull at Maximum Power—7th Gear</b>									
73.12 (54.52)	6019 (26.77)	4.56 (7.33)	2499	2.14	0.605 (0.368)	11.56 (2.28)	air cld	79 (26)	28.40 (96.17)
<b>75% of Pull at Reduced Engine Speed—9th Gear</b>									
107.31 (80.02)	9014 (40.09)	4.46 (7.18)	1793	3.41	0.468 (0.285)	14.95 (2.94)	air cld	79 (26)	28.40 (96.17)
<b>50% of Pull at Reduced Engine Speed—9th Gear</b>									
72.84 (54.32)	6014 (26.75)	4.54 (7.31)	1801	2.22	0.497 (0.302)	14.07 (2.77)	air cld	79 (26)	28.40 (96.17)

**MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>4th Gear</b>									
111.31 (83.00)	17223 (76.61)	2.42 (3.90)	2476	14.46	0.573 (0.348)	12.22 (2.41)	air cld	51 (11)	28.88 (97.80)
<b>5th Gear</b>									
131.51 (98.07)	16751 (74.51)	2.94 (4.74)	2404	9.59	0.519 (0.316)	13.48 (2.66)	air cld	54 (12)	28.89 (97.83)
<b>6th Gear</b>									
136.78 (101.99)	16036 (71.33)	3.20 (5.15)	2198	8.13	0.484 (0.294)	14.45 (2.85)	air cld	56 (13)	28.90 (97.87)
<b>7th Gear</b>									
141.22 (105.31)	14408 (64.09)	3.68 (5.92)	2104	6.30	0.464 (0.283)	15.06 (2.97)	air cld	56 (13)	28.90 (97.87)
<b>8th Gear</b>									
139.79 (104.24)	11880 (52.84)	4.41 (7.10)	2098	4.64	0.467 (0.284)	14.99 (2.95)	air cld	58 (14)	29.14 (98.68)
<b>9th Gear</b>									
138.55 (103.32)	9958 (44.30)	5.22 (8.40)	2102	3.88	0.465 (0.283)	15.03 (2.96)	air cld	59 (15)	29.15 (98.71)
<b>10th Gear</b>									
139.64 (104.13)	8585 (38.19)	6.10 (9.82)	2104	3.28	0.464 (0.282)	15.09 (2.97)	air cld	59 (15)	29.15 (98.71)
<b>11th Gear</b>									
141.31 (105.38)	7329 (32.60)	7.23 (11.64)	2100	2.75	0.459 (0.279)	15.23 (3.00)	air cld	60 (16)	29.16 (98.75)
<b>12th Gear</b>									
137.71 (102.69)	6068 (26.99)	8.51 (13.70)	2103	2.22	0.470 (0.286)	14.88 (2.93)	air cld	66 (19)	29.16 (98.75)

<b>TRACTOR SOUND LEVEL WITH CAB</b>	<b>Front Wheel Drive</b>	
	<b>Disengaged dB(A)</b>	<b>Engaged dB(A)</b>
At 75% load in 11th gear	74.5	75.0
Bystander	—	—

**TIRES, BALLAST AND WEIGHT**

	<b>With Ballast</b>	<b>Without Ballast</b>
<b>Rear Tires</b> —No., size, ply & psi (kPa)	Four 18.4R42; **, 20 (140)	Two 18.4R42; **, 20 (140)
<b>Ballast</b> —Duals (total)	1700 lb (771 kg)	None
—Test Equip. (total)	146 lb (66 kg)	None
<b>Front Tires</b> —No., size, ply & psi (kPa)	Two 16.9R28; **, 22 (150)	Two 16.9R28; **, 22 (150)
<b>Ballast</b> —Liquid (total)	None	None
—Cast Iron (total)	None	None
<b>Height of Drawbar</b>	22.0 in (560 mm)	20.5 in (520 mm)
<b>Static Weight with Operator</b> —Rear	13260 lb (6015 kg)	11414 lb (5177 kg)
—Front	5810 lb (2635 kg)	5810 lb (2635 kg)
—Total	19070 lb (8651 kg)	17224 lb (7812 kg)

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

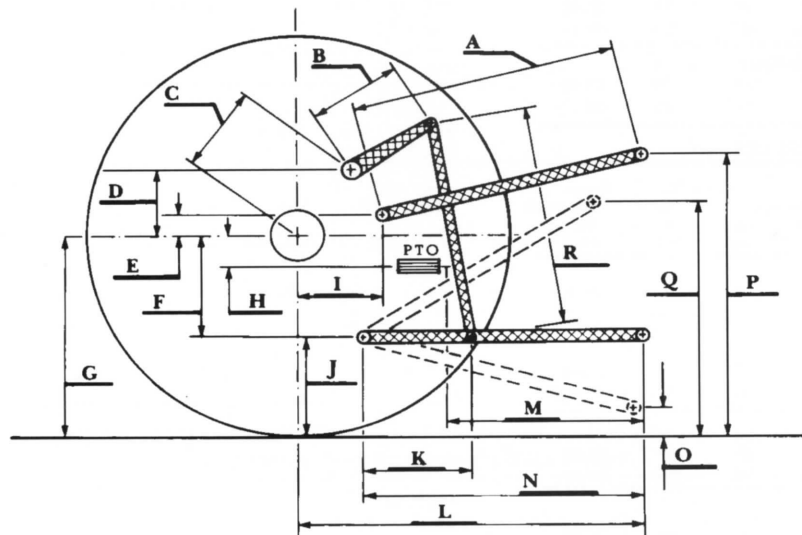
CATEGORY: III

Quick Attach: No

Maximum Force Exerted Through Whole Range: 5913 lbs (26.3 kN)  
6962 lbs (31.0 kN) with lift assist cylinder

- i) Opening pressure of relief valve: NA  
Sustained pressure with pump stalled: 2270 psi (155 bar)
- ii) Pump delivery rate at minimum pressure and rated engine speed: 22.5 GPM (85.2 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 21.5 GPM (81.4 l/min)  
Delivery pressure: 1950 psi (134 bar)  
Power: 24.5 HP (18.3 kW)

### HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	25.3	641
B	16.0	406
C	19.8	502
D	18.2	461
E	9.1	230
F	10.2	259
G	35.0	889
H	1.9	48
I	20.1	508
J	24.8	630
K	21.4	543
L	45.3	1150
M	22.4	568
N	34.8	884
O	9.0	229
P	51.8	1316
Q	38.3	972
R	38.7	983



**AGCO ALLIS 9650 DIESEL**

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